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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/864,309

05/25/2001

Shigeyuki Uzawa

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10/24/2006

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EXAMINER

JARRETT, RYAN A

ART UNIT

PAPER NUMBER

2125

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/864,309

Applicant(s)

UZAWA ET AL.

Examiner

Ryan A. Jarrett

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 48-58 and 60-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 48-58 and 60-62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 48-58 and 60-62 are pending in the application and are presented below for examination.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/10/2006 has been entered.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 48-54, 58, and 60-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. US 5,746,562 in view of Tokuda et al. US 2003/0038929.

Hasegawa et al. discloses:

48. **An exposure apparatus for exposing a wafer to an exposure light via a pattern of a reticle, said apparatus comprising:**

a chamber (e.g., Fig. 3 #101) in which the exposure light passes (e.g., Fig. 3: "X-ray");

~~a conditioner~~ means configured to flow an inert gas through said chamber and to purge an atmosphere in said chamber with the inert gas (e.g., col. 5 lines 52-61: "by means of a gas supplying and discharging system...a reduced pressure state and an atmospheric pressure state can be selectively produced in...the process chamber 101", col. 1 lines 24-33: "there are a pump and valves for gas supplying and discharging of these two chambers", col. 1 lines 60-67: "process chamber 1 and the load lock chamber 2 are evacuated", col. 7 lines 21-22: "Here, a reduced pressure helium ambience of about 150 Torr is maintained inside the chamber 310"); and

a port (e.g., Fig. 3 #102a) through which the wafer is transferred between said chamber and another apparatus (e.g., Fig. 3 #131) outside of said exposure apparatus, said port having a load-lock mechanism (e.g., Fig. 3 #109a, #122a) including a first door disposed between an internal space of said port and said chamber (e.g., Fig. 3 #109a), a second door disposed between the internal space and the other apparatus (e.g., Fig. 3 #122a), a pump (e.g., col. 5 lines 52-61: "pump") configured to create a vacuum below atmospheric pressure in said port and a supply mechanism (e.g., col. 5 lines 52-61: "gas

supplying and discharging system”) configured to supply the inert gas into said port, in which the vacuum has been created by said pump, so that an atmosphere in said port is substantially the same as an atmosphere in same chamber.

49. An apparatus according to claim 48, wherein said exposure apparatus comprises a plurality of said ports (e.g., Fig. 3 #102a, #102b).

50. An apparatus according to claim 49, wherein said plurality of ports comprise a first port configured to load the wafer (e.g., Fig. 3 #102a) and a second port configured to unload the wafer (e.g., Fig. 3 #102b).

51. An apparatus according to claim 48, further comprising an interface section (e.g., Fig. 3 #121) for stocking a wafer between said port and the other apparatus (e.g., Fig. 3 #131, #132).

52. An apparatus according to claim 51, wherein said interface section comprises a load-lock mechanism (e.g., Fig. 3 #122a, #122b).

53. An apparatus according to claim 51, wherein said interface section is shared by a plurality of said ports (e.g., Fig. 3 #121, #102a, #102b).

54. An apparatus according to claim 48, wherein the other apparatus includes a coating/developing system (e.g., Fig. 3 #131, 132).

60. A system for manufacturing a device, said system comprising: an exposure apparatus defined in claim 48, for exposing a wafer, in which the device is to be manufactured, to an exposure light via a pattern of a reticle (e.g., Fig. 3 #101); and

another apparatus which performs for a wafer at least one of a pre-process (e.g., Fig. 3 #131) and a post-process (e.g., Fig. 3 #132) with respect to an exposure process performed by said exposure apparatus.

61. A method of manufacturing a device, said method comprising steps of:

exposing a wafer to a pattern using an exposure apparatus defined in claim 48 (e.g., Fig. 3 #101); developing the exposed wafer (e.g., Fig. 3 #132); and processing the developed wafer to manufacture the device (e.g., Fig. 3 #133, col. 5 line 66 – col. 7 line 5).

62. A method of manufacturing a device, said method comprising:

a first step of processing a wafer using a system as defined in claim 60 (e.g., Fig. 3 #101, 131, 132); and

a second process step of processing the wafer which has been processing in said first process step to manufacture the device (e.g., Fig. 3 #133, col. 5 line 62 – col. 6 line 64).

Hasegawa et al. does not explicitly disclose:

49. a conditioner

58. An apparatus according to claim 48, wherein said chamber comprises a temperature control mechanism for controlling a temperature of the wafer.

Tokuda et al. discloses:

48. An exposure apparatus for exposing a wafer to an exposure light via a pattern of a reticle, said apparatus comprising:

a chamber in which the exposure light passes (e.g., Fig. 1, [0031]: “casing 15”);

a conditioner (e.g., [0083]-[0084]: “air conditioning system”) configured to flow an inert gas through said chamber and to purge (e.g., [0035]: “removing or deactivating impurities”) an atmosphere in said chamber with the inert gas (e.g., [0067]: “supplying nitrogen gas to inside of the lens barrel 15”, [0068]: “nitrogen gas is adopted for purging”); and

a port (e.g., [0087]: “connection section 53”) through which the wafer is transferred between said chamber and another apparatus outside of said exposure apparatus, said port having a load-lock mechanism including a ~~first door disposed between an internal space of said port and said chamber, a second door disposed between the internal space and the other apparatus,~~ a pump configured to create a vacuum below atmospheric pressure in said port (e.g., [0087]: “The construction is such that air inside the connection section 53 is exhausted by the negative suction pressure of a clean room exhausting apparatus connected to the ventilation port, or by the exhaust pressure of an exhaust fan installed in the ventilation port.”) and a supply mechanism configured to supply the inert gas into said port (e.g., [0030]: “a gas supplying device (10) for supplying a predetermined gas to inside the connection unit”), in which the vacuum has been created by said pump, so that an atmosphere in said port is substantially the same as an atmosphere in same chamber (e.g., [0031]: “a first detection device (20) for detecting a condition change of the gas inside the casing (15), and a supply quantity regulating device (22) for regulating a supply quantity of inert gas from the gas supplying device (10) based on detection results of the first detection device (20)”).

58. An apparatus according to claim 48, wherein said chamber comprises a temperature control mechanism for controlling a temperature of the wafer (e.g., [0083]:

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“temperature control system for compensating for operational accuracy of the exposure apparatus”).

Hasegawa et al. and Tokuda et al. are analogous art since both pertain to exposure apparatuses. They also overlap with respect to many feature of independent claim 1, as detailed above.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hasegawa et al. to include a conditioner (temperature control mechanism) in the process chamber, since Tokuda et al. teaches that a conditioner (temperature control mechanism) in the process chamber aids in the removal, deactivation, and purging of impurities (e.g., [0035], [0067], [0068]), and since Tokuda et al. teaches that a temperature control mechanism enables compensating for operational accuracy of the exposure apparatus (e.g., [0083]).

6. Claims 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al. in view of Tokuda et al. as applied to claim 48 above, and further in view of Ueda et al. U.S. Patent No. 6,319,322. Hasegawa et al. in view of Tokuda et al. does not appear to explicitly disclose that the port section includes a temperature control mechanism comprising at least one of a heater and a cooler.

However, such devices are well known in the art. For example, Ueda et al. discloses a substrate processing apparatus comprising an aligner process chamber that

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includes a temperature control mechanism (e.g., col. 1 lines 50-53); and further comprising a port section that includes a temperature control mechanism that includes at least one of a heater and a cooler (e.g., col. 1 lines 61-64, col. 8 lines 28-37).

Ueda et al. is analogous to Hasegawa et al. and Tokuda et al. since it too pertains to an exposure apparatus.

It would have been obvious to one having ordinary skill in the art at the time of the instant application to modify Hasegawa et al. as modified by Tokuda et al. with Ueda et al. since Ueda et al. teaches that a temperature regulating means for regulating the temperature of a substrate held by a port section in accordance with the temperature regulation in an aligner is advantageous so that the substrate can be delivered to the aligner in a state where the temperature of the substrate is regulated closer to the temperature required in the aligner. Accordingly, the temperature of the substrate can be more accurately regulated in the aligner in a shorter time, so that circuit patterns can be accurately transferred, and throughput can be improved by speeding up the processing (e.g., col. 1 line 65 – col. 2 line 8).

Claim 58 is a functional limitation that does not limit the structure of the claimed apparatus. Prior art structure capable of performing function.

Response to Arguments

7. Applicant's arguments filed 10/10/2006 have been fully considered but they are not persuasive. Applicants submit that the cited art, whether taken individually or in

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combination, does not teach or suggest such features of the present invention, as recited in independent claim 48. Examiner disagrees, as detailed above.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan A. Jarrett whose telephone number is (571) 272-3742. The examiner can normally be reached on 10:00-6:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571) 272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ryan A. Jarrett
Examiner
Art Unit 2125



10/20/06